

IN THE DRAWINGS:

Please amend Figs. 2-7 to include the legend "Prior Art" as indicated on the marked-up copies enclosed herewith. Replacement sheets incorporating the foregoing amendments are also provided.

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have amended Figs. 2-7 to include the legend "Prior Art", and the title of the invention has been amended to more specifically describe the subject matter of the present invention. Further, claims 1-4 have been amended to more specifically recite the intended subject matter of the present invention, to address the objection to claim 4 and the rejection of claims 1-3 under 35 U.S.C. § 112, second paragraph. New claim 6 has been added. No new matter has been added.

It is noted that the Applicants have not amended the Summary of the Invention set forth in the specification, as it is believed that since the description corresponds to the claim language it is an accurate summary of the invention as the claims are directed to the invention. If there is any specific language the Examiner objects to, it is respectfully requested that such language be identified so that the Applicants may amend such language.

For the reasons set forth below, it is respectfully submitted that all pending claims are in condition for allowance.

II. The Rejection Of The Claims Under 35 U.S.C. § 103

Claims 1-3 and 5 were rejected under 35 U.S.C. § 103 as being unpatentable over USP Pub. No. 2002/0026543 to Tojima in view of USP No. 5,708,849 to Coke. Applicants respectfully submit that the pending claims are patentable over Tojima and Coke for at least the following reasons.

The present invention relates to a DMA controller that provides a simple, cost effective circuit for allowing both ring buffer transfers and rectangular block transfers. As recited by

claim 1, the DMA controller includes a first, second and third register, which hold different values dependent on the given transfer being performed. For example, when performing ring buffer transfers the third register contains a value corresponding to the difference between the end address (which is stored in the second register) and the start address (which is stored in the first register). Turning to the cited prior art references, Tojima is relied upon as disclosing the recited first and second registers. However, the portions of Tojima cited in the Office Action (paragraphs [252]-[256]) simply disclose how the necessary parameters are stored in memory, and how the parameters can be retrieved from memory. Indeed, it is how the parameters are stored in memory that is of importance in Tojima (see, paragraph [269]). There is no disclosure of storing the parameters in individual registers as recited by claim 1.

Moreover, the pending Office Action acknowledges that Tojima does not teach the third register for storing the difference between the end address and the start address. Coke is relied upon as curing this deficiency. However, it is clear Coke does not do so. The section of Coke cited in the Office Action (col. 1, lines 28-50) merely states that DMA controllers can be utilized so as to allow the system processor to perform other tasks. However, Coke does not appear to disclose or suggest a DMA controller which utilizes a register for storing the difference between the end address and the start address when performing ring buffer transfers. Thus, Coke does not cure the deficiencies of Tojima. Accordingly, for at least these reasons, it is respectfully submitted the pending claims are patentable over Tojima and Coke.

As is well known, each and every limitation must be disclosed or suggested in the cited prior art references in order to establish a *prima facie* case of obviousness (see, M.P.E.P. § 2143.03). As it is clear that the combination of Tojima and Coke fails to do so, it is respectfully submitted that the pending claims are patentable over the combination of Tojima and Coke.

Further, it is also known that the fact that the prior art could be modified so as to result in the combination defined by the claims at bar would not have made the modification obvious unless the prior art suggests the desirability of the modification. *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986).

Moreover, recognizing after the fact that such a modification would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. *In re Warner*, 379 F.2d 1011, 154, USPQ 173 (CCPA 1967).

It is only Applicants' disclosure that discloses the recited simple, cost effective DMA controller which advantageously provides for operation in two modes, and which includes the recited three registers and their respective functionality. Neither Tojima nor Coke describe or suggest such features. Thus, the only motivation of record for the proposed modification of the device of Tojima or Coke to arrive at the claimed invention is found in Applicants' disclosure which, of course, may not properly be relied upon to support the ultimate legal conclusion of obviousness under 35 U.S.C. §103. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 227 1 USPQ2d 1593 (Fed. Cir. 1987).

For all of the foregoing reasons, it is respectfully submitted that all pending claims are patentable over Tojima and Coke.

III. Conclusion

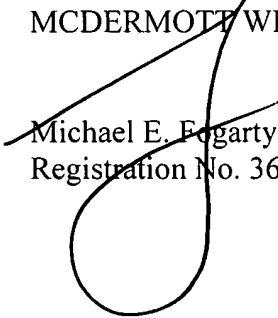
Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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FIG. 2 PRIOR ART

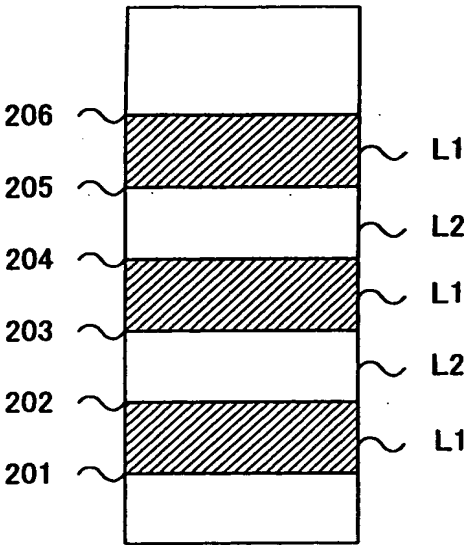


FIG. 3 PRIOR ART

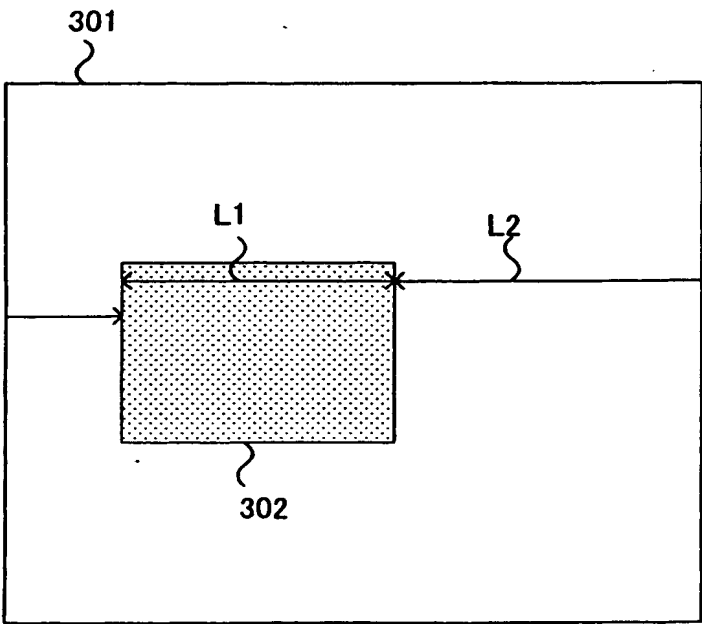


FIG. 4 PRIOR ART

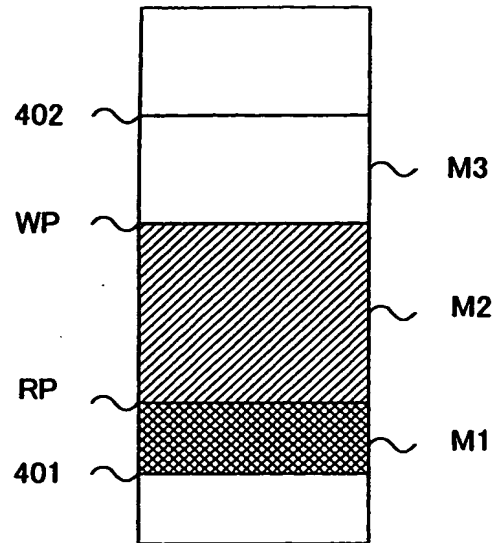


FIG. 5 PRIOR ART

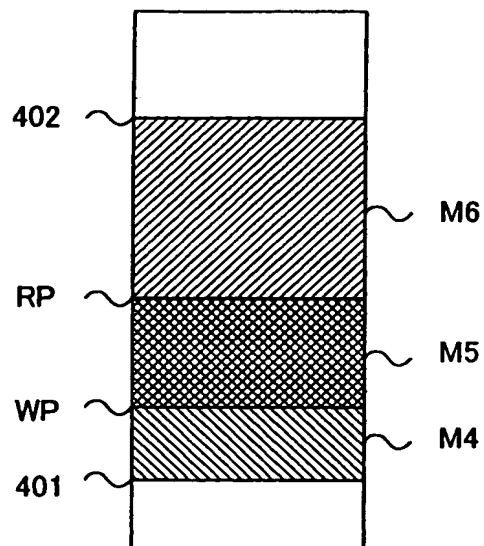


FIG. 6 PRIOR ART

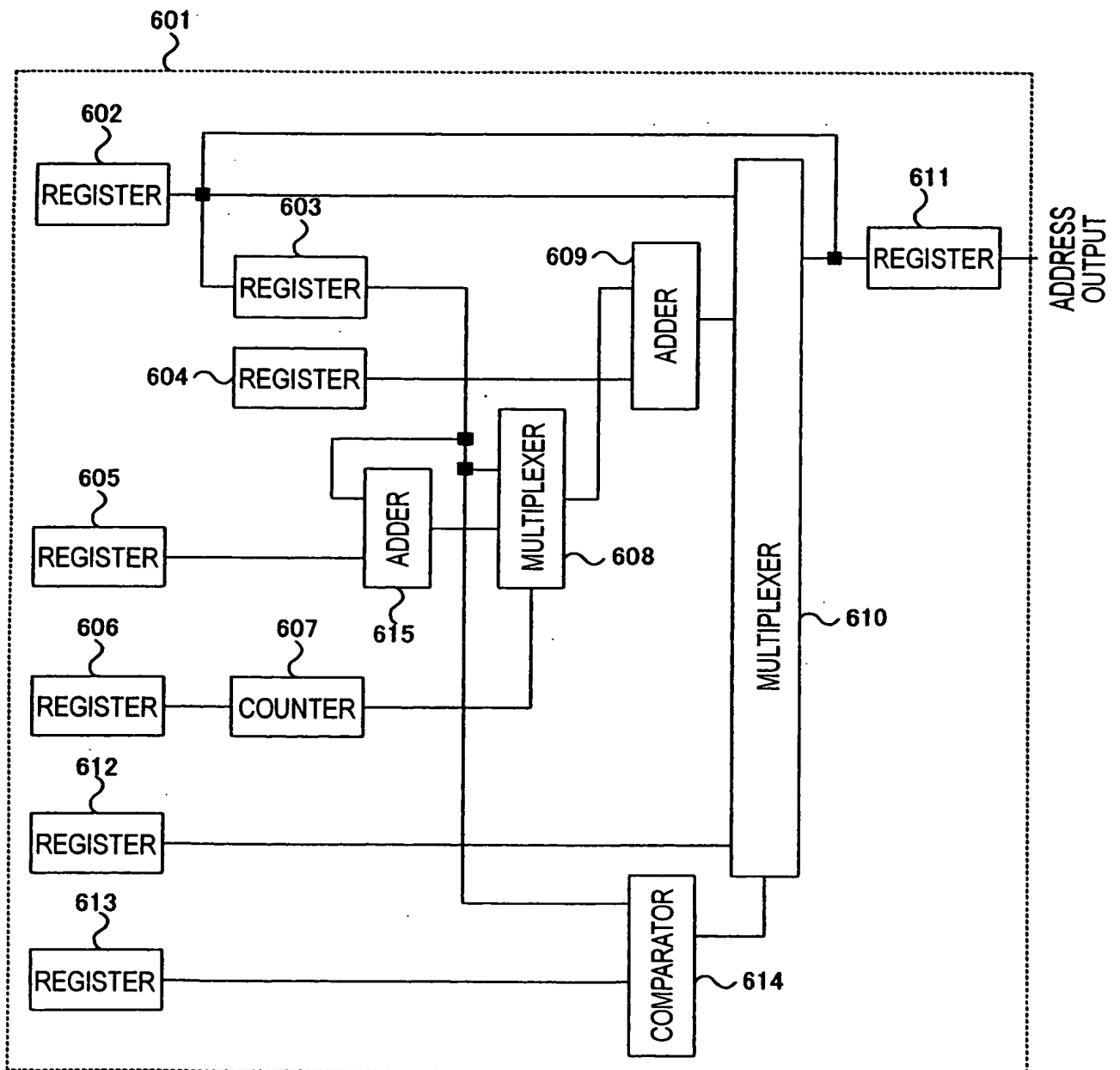


FIG. 7 PRIOR ART

